

**Amendments**

**In the claims:**

**At claims 2-7 and 22-24, line 1 delete “1” and substitute therefore - - 31 - -;**

**At claim 8, line 1 delete “8” and substitute therefore - - 31 - -;**

**Add the following new claims 29-31;**

**29) (New) A process for the production of microcellular nanocomposite or molecular-composite polymer foam shape comprising:**

- a) compression molding a nanocomposite or molecular-composite polymer to be foamed into a consolidated shape comprising up to about 30 weight percent of a filler selected from the group consisting of chopped glass fibers, carbon fibers, metallic fibers, aramid fibers, ceramic whiskers, ceramic fibers and calcium carbonate powder;**
- b) saturating the consolidated shape with an inert gas at an elevated pressure and at a temperature above the glass transition temperature of said polymer;**
- c) fully or partially releasing the pressure; and**
- d) controllably quenching said polymer shape to a temperature below the glass transition temperature of the polymer.**

**30) (New) A process for the production of a microcellular nanocomposite or molecular-composite polymer foam shape comprising:**

**a) compression molding a nanocomposite or molecular-composite polymer selected from the group consisting of blends of nanofibers or nano powders with a polymer and polyhedral oligomeric silsesquioxanes into a consolidated shape;**

**b) saturating the consolidated shape with an inert gas at an elevated pressure and at a temperature above the glass transition temperature of said polymer;**

**c) fully or partially releasing the pressure; and**

**d) controllably quenching said polymer shape to a temperature below the glass transition temperature of the polymer.**

**31) (New) A process for the production of a microcellular nanocomposite or molecular-composite polymer foam shape comprising:**

**a) compression molding a molecular-composite polymer comprising rigid rod polymer molecules dispersed in a matrix of a flexible coil polymer at the molecular level.**

**b) saturating the consolidated shape with an inert gas at an elevated pressure and at a temperature above the glass transition temperature of said polymer;**

**c) fully or partially releasing the pressure; and**

**d) controllably quenching said polymer shape to a temperature below the glass transition temperature of the polymer.**